

REMARKS

Claims 1 and 8-15 stand rejected under 35 U.S.C. §102(e) as being anticipated by United States Patent Application Publication No. 2003/0111666 to Nishi et al. Applicants respectfully traverse this rejection.

Applicants respectfully submit that the Nishi et al. reference fails to disclose all of the features of the present invention. More specifically, the Nishi et al. reference fails to disclose a display device including two substrates, in which the first substrate includes a plurality of light emitting elements thereon, and the second substrate includes thereon a circuit for controlling the light emitting elements, as defined in independent Claim 1. Further, the Nishi et al. reference also fails to disclose a method of making a display device including the steps of forming light emitting elements on one substrate and forming switching elements on a second substrate, as defined in independent Claim 12. Nor does the Nishi et al. reference disclose a method of making a display device including the steps of forming light emitting elements and switching circuits on one substrate and forming a circuit connected to the switching elements on a second substrate, as defined in independent Claim 13.

One example of an embodiment of the present invention of Claim 1 is shown in Applicants' Figure 1, which includes a first substrate (50) with a plurality of light emitting elements (defined by layers 52-60) and a second substrate (10) including a circuit for controlling the light emitting elements. In the Figure 1 embodiment, the circuit includes a thin film transistor (TFT), or switching element, defined by components 14-22. As can be

seen in Figure 1, the light emitting element (layers 52-60) is on a different substrate than the circuit, which in this embodiment includes layers 14-22. In other embodiments of the invention defined by Claim 1, the circuit may include different components other than the switching elements (such as circuits 88 of Figures 6 and 9), but these circuits are always formed on a different substrate from the substrate that the light emitting elements (EL) are formed on.

One of the advantages of the present invention realized by placing the light emitting elements on one substrate and the circuit for controlling the light emitting elements on the other substrate is that the aperture ratio can be increased over prior art devices. For example, in the prior art device shown in Applicants' Figure 13, the light emitting elements (only one of which is shown, as represented by layers 126, 128, 130, 132, and 134) are located on the same substrate (substrate 100) as the circuit for controlling the light emitting elements (such as components 102-124). As can be seen in Figure 13, the circuit limits the area that can be used for the light emitting elements because light does not pass through the circuit. As another example, Applicants' Prior Art Figure 14 shows how the light emitting element (layers 126, 128, 130, 132 and 134) extends over the circuit. However, the roughness caused by the TFTs, the interconnections, etc. (*i.e.*, the circuit for controlling the light emitting elements) results in degraded emission characteristics for this portion of the light emitting element. In contrast, as can be seen in Applicants' Figure 1, for example, by placing the light emitting elements (layers 52, 54, 56, 58 and 60) on one substrate (such as substrate 50) and the circuit for controlling the elements on a second substrate (such as

substrate 10), the aperture ratio can be increased because the TFT (layers 14, 16, 18, 20 and 22) does not limit the space available for the light emitting elements (as in Prior Art Figure 14), nor does it make the surface of the light emitting element rough (as in Prior Art Figure 14). Thus, the present invention allows for a high aperture ratio, which results in higher luminance.

In contrast, in the device of the Nishi et al. reference, both the light emitting elements and the circuits that control them appear to be formed on the same substrate. For example, Figure 16B of the Nishi et al. reference shows that the light emitting elements 1618 and the TFTs 1623, 1624 that control the light emitting elements are both formed on the same substrate (substrate 1610). Thus, in the device of Nishi et al., the circuits for controlling the light emitting elements (TFT's 1623 and 1624) are not formed on a different substrate than the light emitting elements 1618, as required by Claim 1. Nor does the Nishi et al. reference show any other circuits for controlling the light emitting elements being formed on the other substrate (*i.e.*, substrate 1604) from the substrate upon which the light emitting elements are formed (*i.e.*, substrate 1610). Thus, as all of the features of Claims 1, 12 and 13 are not satisfied, Applicants respectfully request the withdrawal of this §102(e) rejection of independent Claim 1 and associated dependent Claims 8-11.

With regard to independent Claim 12, the Nishi et al. reference fails to disclose a method of making a display device in which the light emitting elements are formed *on one substrate* and the switching elements are formed *on the other substrate*, as discussed above when responding to the rejection of Claim 1. With regard to independent Claim 13, the Nishi

et al. reference fails to disclose a method of making a display device in which the light emitting elements and the switching elements are formed *on one substrate* and a prescribed circuit connected to the switching elements is formed *on the other substrate*, as discussed below when responding to the rejection of Claim 3. Accordingly, as all of the features of independent Claims 12 and 13 are not disclosed in the Nishi et al. reference, Applicants respectfully request the withdrawal of this §102(e) rejection of independent Claims 12 and 13 and associated dependent Claims 14 and 15.

Claims 2, 3, 6, 7 and 16-19 stand rejected under 35 U.S.C. §103 as being unpatentable over Nishi et al. in view of United States Patent Application Publication No. 2004/0079937 to Miyazawa. Applicants respectfully traverse this rejection.

Claim 2 depends from independent Claim 1, and therefore includes all of the features of Claim 1, plus additional features. Accordingly, Applicants respectfully request that the §103 rejection of dependent Claim 2 under Nishi et al. in view of Miyazawa be withdrawn considering the above remarks directed to independent Claim 1, and also because the Miyazawa reference does not remedy the deficiencies noted above.

With regard to independent Claim 3, this claim also defines a similar feature to that recited in Claim 1, namely that there is a circuit for controlling the plurality of light emitting elements formed on a substrate different from the substrate upon which the light emitting elements are formed. However, this claim also recites that the scan lines, the bus lines and the switching elements are also formed on the same substrate as the light emitting elements. Applicants' Figures 6 and 9 show two examples of embodiments that satisfy

independent Claim 3. As can be seen in Figures 6 and 9, circuits 88, which are used for controlling the light emitting elements EL, are located on the second substrate (80) while the data bus lines 72, the scan bus lines 74, the TFTs and the light emitting elements EL are all located on the first substrate 70. As mentioned above, the devices of the Nishi et al. reference lack the claimed circuit for controlling the plurality of light emitting elements that is located on a different substrate than the light emitting elements. Instead, in the devices of the Nishi et al., the light emitting elements and the circuits that control them are located on the same substrate. Further, the Miyazawa reference does not remedy this deficiency because, as can be seen in Figure 6, both the light emitting elements (140) and the TFTs (142 and 143) are located on the same substrate (substrate 121), with neither of these components being located on the other substrate (substrate 148). Accordingly, for at least these reasons, Applicants respectfully request the withdrawal of this §103 rejection of independent Claim 3 and associated dependent Claims 6, 7 and 16-19.

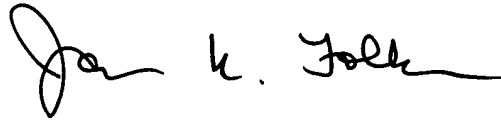
Finally, Applicants have also added new dependent Claims 20-22, and respectfully submit that these claims are allowable for at least the reasons discussed above with respect to their associated independent claims.

For all of the above reasons, Applicants request reconsideration and allowance of the claimed invention. Should the Examiner be of the opinion that a telephone conference

would aid in the prosecution of the application, or that outstanding issues exist, the Examiner is invited to contact the undersigned.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

A handwritten signature in black ink, appearing to read "James K. Folker", written in a cursive style.

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